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What is Morphine? What is it used for?

Morphi e is pronounced as [/ˈmɔrfiːn/](http://en.wikipedia.org/wiki/Wikipedia:IPA_for_English)

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| * [potent](http://en.wikipedia.org/wiki/Potency_%28pharmacology%29) [opiate](http://en.wikipedia.org/wiki/Opiate) [analgesic](http://en.wikipedia.org/wiki/Analgesic) [psychoactive drug](http://en.wikipedia.org/wiki/Psychoactive_drug) and is considered to be the prototypical [opioid](http://en.wikipedia.org/wiki/Opioid). | * the first active principle purified from a plant source and is one of at least 50 alkaloids of several different types present in opium, [Poppy Straw Concentrate](http://en.wikipedia.org/wiki/Poppy_Straw_Concentrate), and other poppy derivatives |
| * most abundant alkaloid found in [opium](http://en.wikipedia.org/wiki/Opium), the dried sap (latex) derived from shallowly slicing the unripe seedpods of the opium, or common or edible, poppy, *Papaver somniferum* | Morphine is generally 8 to 17 per cent of the dry weight of opium, although specially-designed cultivars reach 26 per cent or produce little morphine at al, under 1 per cent, perhaps down to 0.04 per cent. |
| * In clinical medicine, morphine is regarded as the gold standard, or benchmark, of analgesics used to relieve severe or agonizing pain and suffering. Like other opioids, e.g. oxycodone (OxyContin, Percocet, Percodan), hydromorphone (Dilaudid, Palladone), and diacetylmorphine (heroin), morphine acts directly on the central nervous system (CNS) to relieve pain |

What is heroin? What do you know about it?

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| * also known as **diamorphine** | * The white crystalline form is commonly the hydrochloride salt diacetylmorphine hydrochloride, though often adulterated thus dulling the sheen and consistency from that to a matte white powder, which heroin freebase typically is. |
| * is a [semi-synthetic opioid](http://en.wikipedia.org/wiki/Opioid) [drug](http://en.wikipedia.org/wiki/Drug) synthesized from [morphine](http://en.wikipedia.org/wiki/Morphine), a derivative of the [opium poppy](http://en.wikipedia.org/wiki/Opium_poppy) | * used as both an [analgesic](http://en.wikipedia.org/wiki/Analgesic) and a [recreational drug](http://en.wikipedia.org/wiki/Recreational_drug) |
| * It is the 3,6-[diacetyl](http://en.wikipedia.org/wiki/Acetate) [ester](http://en.wikipedia.org/wiki/Ester) of morphine (*[di](http://en.wikipedia.org/wiki/Numerical_prefix" \l "Table_of_non-technical_numeric_prefixes" \o "Numerical prefix)* (two)-[*acetyl*](http://en.wikipedia.org/wiki/Acetylation)*-*[*morphine*](http://en.wikipedia.org/wiki/Morphine)). | * Frequent and regular administration may develop into [addiction](http://en.wikipedia.org/wiki/Substance_dependence). |

What do they have in common?

* They have the same central atoms but have different skeletal structure
* They are both analgesics
* They are both drugs
* Frequent and regular administration is associated with [tolerance](http://en.wikipedia.org/wiki/Drug_tolerance) and [physical dependence](http://en.wikipedia.org/wiki/Physical_dependence), which may develop into [addiction](http://en.wikipedia.org/wiki/Substance_dependence).

What functional groups?

We know that functional groups are specific groups of [atoms](http://en.wikipedia.org/wiki/Atom) within [molecules](http://en.wikipedia.org/wiki/Molecule) that are responsible for the characteristic [chemical reactions](http://en.wikipedia.org/wiki/Chemical_reaction) of those molecules.

For morphine, alkene, alcohol, ether, amine and phenol are the functional gropus present.

For Heroin, alkaloid functional group is resent.